VZ 200/300

HUNTER VALLEY
VZ JOURNAL

A VERY MERRY
CHRISTMAS
AND PROSPEROUS
AND HAPPY
NEW YEAR 1991

BELIEVE IT OR NOT :
THERE WAS THIS PERSON WHO SHALL REMAIN NAMELESS WAS REQUESTED BY THE PROGRAM HE WAS USING TO 'PRESS ANY KEY TO PROCEED' WHICH HE COULDN'T FIND, SO HE TOOK HIS COMPUTER BACK TO THE SHOP FOR ONE WITH AN 'ANY' KEY.

CONGRATULATIONS: ON THE PRODUCTION OF THE FOURTH ANNIVERSARY EDITION. I PERSONALLY ACKNOWLEDGE THIS IS DUE MOSTLY TO YOUR EFFORTS. BRIAN GREEVE.

THANKS BRIAN FOR YOUR WORDS OF PRAISE WHICH IS GREATLY APPRECIATED, BUT ANY PUPLICATION IS ONLY AS GOOD AS ITS COTRIBUTORS. I WAS LUCKY IN HAVING THE SUPPORT OF HIGH CALIBRE CONTRIBUTORS LIKE YOURSELF AND MANY OTHERS AS WELL. JOE LEON , EDITOR.

FOURTH ANNIVERSARY: WHEN I FIRST STEPPED IN DECEMBER 1986 I NEVER ENVISAGED THAT I'LD BE STILL EDITING FOUR YEARS LATER. FROM THE FIRST TO THE CURRENT ISSUE I'VE TRIED TO PRODUCE THE JOURNAL TO THE BEST OF MY ABILITIES AND I FIND THAT EVEN AFTER ALL THIS TIME AS EDITOR I STILL ENJOY DOING IT.

IN THE LAST 12 MONTHS I NEARLY GAVE IT ALL UP SEVERAL TIMES FOR PERSONAL REASONS, BUT THINGS ARE STARTING TO LOOK UP AND WOULD YOU BELIEVE TWO ISSUES IN TWO MONTHS. LOOKS LIKE I'LL BE ABLE TO CATCH UP SOON. LIKE ANYONE ELSE I MAKE MISTAKES AND THERE HAVE BEEN A FEW LATELY AND I FIND I'M LEARNING BECAUSE OF THEM.

THE JOURNAL HAS GIVEN ME A GREAT DEAL OF PERSONAL SATISFACTION, SELF ESTEEM AND A SENSE OF ACCOMPLISMENT, BUT MOST IMPORTANT OF ALL ONE WAY OR ANOTHER I'VE MADE CONTACT WITH MANY PERSONS VIA THE POST, PHONE OR PERSONALLY AND SHARED A COMMON INTEREST, THE MIGHTY VZ.

HELP WITH ARTICLES: I'M RUNNING SHORT OF ARTICLES AGAIN FOR THE JOURNAL SO IF YOU CAN HELP OUT HOWEVER SMALL YOUR CONTRIBUTION IT WOULD BE APPRECIATED. REMEMBER THIS IS YOUR JOURNAL AND AS THE SAYING GOES MANY HANDS MAKE LIGHT WORK AND IT WOULD MAKE MY JOB LOTS EASIER. SO SHARPEN YOUR FINGERS AND START TYPING AWAY.

OPEN INVITATION: OUR CLUB DOORS ARE OPEN TO ALL VISITORS REGARDLESS OF GEOGRAPHY. SO IF YOU ARE PASSING THROUGH OR HOLIDAYING NEARBY, THEN GIVE US A CALL EVEN IF IT'S NOT CLUB MEETING TIME. WE'LL BE GLAD TO SEE YOU.

WANTED : A CHEAP BUT OK 64K RAM PACK.
PHOTOCOPIES OF: AEM ARTICLES ON VZ, EG: APRIL 88. EA JULY 81, GP-100 REVIEW AND VZ. ETI MARCH 84 STEVE OLNEY ON THE VZ. ETI-687 VZ200 34K SUPER DUPER VZ. ETI OCT 84 RITTY. JULY 85 AND ANY OTHER ARTICLES UP TO JUNE 88 (ON VZ).

DAVID MAUNDER 'LYNDONDALE' BORAH CREEK ROAD QUIRINDI 2343
PHONE: (067) 461 711 AFTER 4 PM.

WANTED TO SWAP : VZ 300 PCB (NO CASE OR KEYBOARD), JOYSTICK INTERFACE WITH ONE JOYSTICK; 9 X 6116 2K RAM CHIPS, Z80A, 2716 EPROM, 2 X 482764 EPROMS, PLUS VARIOUS IC'S LIKE 74LS138, 74LS157. ALL CHIPS ARE FROM A DEFUNCT MICROBEE AND ARE SOLDERED EXEPT FOR THE Z80A AND THE EPROMS. THE VZ 300 ONLY NEEDS A U14 IC (GA004).

SWAP FOR : VZ 200 IN WORKING CODITION WITH OR WITHOUT KEYBOARD. IF THIS DEAL DOES NOT PLEASE THEN CONTACT ME ANYWAY AS I HAVE OTHER GOODIES THAT I WILL THROW IN TO COMPLETE THE DEAL.

BEN HOBSON PO BOX 255 QUIRINDI 2343 - PHONE: (067) 462 076)

THE PROGRAM WILL NOT LOAD ANY HI-RES SCREENS INTO MEMORY AND MORE LIKELY WILL HANG UP. WHEN EDITING I SHORTENED THE START OF THE PROGRAM SO IT WOULD FIT ON ONE PAGE. EVEN THOUGH THE WARNING WAS IN LINE 1020 SOMEHOW I MISSED IT. MY APOLOGIES TO BOB AND OUR READERS. TO MAKE UP FOR IT I PRESENT A SOLUTION SO YOU CAN FIX IT UP.

LOAD LOAD UP AND TYPE IN THE LITTLE PROGRAM BELOW AND THEN SAVE THE ALTERED PROGRAM. NEXT TYPE IN GOTO 4000 AND PRESS RETURN. WHAT WE'LL BE TRYING TO DO IS TO FIND OUT THE POKE ADDRESSES FOR THE LETTER A AND H IN THE CHARACTERS 'ABCDEFGH' IN LINE 1000. YOU'LL SEE THREE COLUMNS ON THE SCREEN.

FIRST COLUMN = MEMORY ADDRESS OF THE CHARACTER.
SECOND COLUMN = ASCII CODE OF THE CHARACTER.
THIRD COLUMN = CHARACTER.

USING THE SPACE KEY TO START/STOP CONTINUE TILL THE LETTERS ABCDEFGH ARE DISPLAYED ON THE SCREEN IN THE THIRD COLUMN. WRITE DOWN THE ADDRESSES FOR THE LETTERS 'A' AND 'H' AND PRESS 'Q' TO QUIT. NEXT LIST LINE 1000. ENTER THE TWO NEW ADDRESSES OVER THE OLD ONES AND THEN LIST LINE 2100. TYPE IN THE NEW ADDRESS FOR 'A' OVER THE OLD ONE AND THAT COMPLETES THE CORRECTIONS. THE PROGRAM SHOULD WORK AS DESIGNED NOW. ANY TIME YOU ALTER LINES 10 TO 1000 YOU HAVE TO CHANGE THE ADDRESS FOR 'A' IN LINE 2100 USING THE MEMORY PEEK ROUTINE TO FIND THE NEW ADDRESS FOR 'A' FIRST.

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3090 '
4000 CLS:POKE30777,1:PRINT@3,"SPACE START/STOP   Q-QUIT"
4010 PRINT:FORL=31800 TO 31900
4015 PRINT TAB(9) USING"###### ";L;
4020 PRINT USING" ###   ";PEEK(L);
4030 IF PEEK(L)<32 THEN PRINT:GOTO 4050
4040 PRINT USING"%%";CHR$(PEEK(L))
4050 IF INKEY$=" "THEN 4060 ELSE IF INKEY$="Q"THEN 4070
4060 IF INKEY$=""THEN 4050 ELSE NEXT
4070 CLS:END
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ENLARGED MEMORY PEEK ROUTINE:

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100 CLS:POKE30777,1:PRINT" I██MEMORY██PEEK██ROUTINE██ I";
110 PRINT@98,"";:INPUT"ENTER START ADDRESS ";SA
120 PRINT@162,"";:INPUT"ENTER  END  ADDRESS ";EA
130 IF EA<=SA THEN 120
140 IF SA>32767 THEN SA=SA-65536
150 IF EA>32767 THEN EA=EA-65536
160 :
170 CLS:POKE30777,1:PRINT"I██SPACE██START/STOP██Q-QUIT██ I";
180 PRINT:FORL= SA TO EA:PRINTTAB(9)USING"######   ";L;
190 PRINT USING"###   ";PEEK(L);
200 IF PEEK(L)<32 THEN PRINT:GOTO 220
210 PRINT USING"%%";CHR$(PEEK(L))
220 IF INKEY$=" "THEN 230 ELSE IF INKEY$="Q"THEN 240
230 IF INKEY$=""THEN 220 ELSE NEXT
240 PRINT@481,"I██PRESS ENTER FOR ANOTHER ADDRESS██ I";
250 POKE 30777,35:SOUND30,1
260 IF INKEY$=CHR$(13)THEN 100 ELSE 260
270 :
280 'SOME INTERESTING PEEK ADDRESSES
290 'ADDRESSES 270 TO 300  &  5710 TO 6180
300 'ADDRESSES 6420 TO 6460 & 17190 TO 17270
```

WE NOW NEED TO CONSIDER THE TIMING OF THE CPU IN DOING A 2K BLOCK MOVE OPERATION. THE Z80 IN THE VZ300 RUNS AT 3.54 MHZ (THE VZ200 RUNS AT 3.58 MHZ). THE FOLLOWING TABULATION INDICATES THE TIMING OF THE BLOCK MOVE -

OPCODE	T-STATES	M-CYCLES
DI	4	1
LD HL	10	3
LD DE	10	3
LD BC	10	3
LDIR	21×2047+16	5×2047+4
	IF BC=0 THEN T=16 AND M=4	
	IF BC<>0 THEN T=21 AND M=5	
EI	4	1
RET	10	3
	43051	10253

TIME TO EXECUTE IS 43051/3.54E6 SEC. = 12.16 MSEC. TO BLOCK MOVE A 2K SCREEN. THIS IS LONGER THAN THE 7.69 MSEC. MENTIONED ABOVE. A 2K BLOCK MOVE WILL CAUSE HASH TO APPEAR ON THE SCREEN BECAUSE A TIMING CONFLICT IN THE WRITE BY THE Z80 AND THE READ BY THE VDG OCCURS. FOR THOSE OF YOU WHO HAVE SEEN THROWUP OPERATE, YOU WILL HAVE SEEN THIS EFFECT IN THE "PLAIN MODE" OF OPERATION.

SO, WHAT HAVE WE LEARNT THUS FAR ABOUT GRAPHICS ON THE VZ? WE HAVE DISCOVERED HOW THE Z80 AND THE 6847 VDG INTERACT WITH VRAM TO MAKE THE SCREEN DISPLAY. WE HAVE ALSO SEEN WHY "HASH" APPEARS ON THE SCREEN. WE HAVE ALSO ANALYSED THE TIMING OF SCREEN TRANSFERS FROM A BUFFER AND DISCOVERED THAT ABOUT 1K OF DATA CAN BE BLOCK MOVED DURING THE SCREEN REFRESH PERIOD. IN SOME PREVIOUS ARTICLES IN USER GROUP NEWSLETTERS, I HAVE DESCRIBED THE MASKABLE INTERRUPT SYSTEM USED IN THE VZ. LET'S PUT ALL OF THIS TOGETHER TO MAKE A HASH-FREE DISPLAY SYSTEM. SUCH A SYSTEM IS USED IN LIVENUP.

INTERRUPT-DRIVEN SCREEN BUFFER.

I TRUST THAT THE FOREGOING DISCUSSION MAKES IT APPARENT THAT, WHEN WRITING PARTICULARLY GRAPHICS PROGRAMS, IT IS BETTER TO HAVE THE Z80 UPDATING A BUFFER AREA IN MEMORY RATHER THAN DIRECTLY WRITING TO VRAM. THIS IS THE ONLY TECHNIQUE THAT WILL REMOVE THE HASH FROM THE VZ DISPLAY. THIS PROGRAMMING TECHNIQUE HAS THE ADDED ADVANTAGE THAT INTERRUPTS CAN BE DISABLED AND PROCESSING SPED UP CONSIDERABLY BY BYPASSING SOME OF THE VZ'S OVERHEADS SUCH AS KEYBOARD SCANNING.

TO TRANSFER THE BUFFER INTO VRAM EMPLOYS A FEW OTHER PROGRAMMING TRICKS. CLEARLY A 2K HI-RES SCREEN MUST BE MOVED IN TWO HALVES AS THERE IS SIMPLY INSUFFICIENT TIME DURING THE "INVISIBLE" PORTION OF THE DISPLAY UPDATE TO MOVE IT IN A SINGLE 2K BLOCK.

THE METHOD THAT I HAVE USED ENABLES THE MASKABLE INTERRUPTS ON THE Z80 AND RESETS THE INTERRUPT VECTOR TO POINT TO THE SCREEN UPDATE ROUTINES. TO ALLOW SUFFICIENT TIME FOR THE TWO HALVES OF THE BUFFER TO BE RELOCATED, A SUITABLE DELAY OR PAUSE ROUTINE MUST BE ENTERED. ONE SUCH ROUTINE OCCURS IN THE DOS ROM AND CAN BE CONVENIENTLY CALLED WITH THE DELAY DURATION IN MSEC. PASSED IN THE BC REGISTER. IF DOS IS NOT INSTALLED ON THE VZ THEN ANOTHER DELAY ROUTINE OCCURS AT 0060H IN ROM. THE VALUE PASSED IN BC IS NOT IN MSEC. HOWEVER. THE DELAY DURATION VALUE CAN ALSO BE USED TO CONTROL THE SPEED AND SMOOTHNESS AT WHICH GRAPHICS FLOW ACROSS THE SCREEN.

THE SOLUTION - AN ASSEMBLER LISTING.

SO WHAT DOES THE ASSEMBLER LISTING OF ALL OF THIS LOOK LIKE? BY REFERRING TO A LISTING OF MOVE USED BY LIVENUP, SOME CLARITY MAY BE SHED ON THE SUBJECT FOR CONFUSED READERS!

THE LISTING FALLS NATURALLY INTO FOUR SECTIONS. THE FIRST IS THE MAINLINE CALLING SEQUENCE AND IS NOT DETAILED HEREIN AS THIS WILL VARY ACCORDING TO THE APPLICATION. THE SECOND PORTION IS A PAUSE AND DISPLAY SUBROUTINE CALLED DPLY WHICH POINTS THE INTERRUPT VECTOR AT THE MOVE ROUTINES, ENABLES INTERRUPTS AND THEN ENTERS A PAUSE ROUTINE DURING WHICH TIME THE TRANSFER OF THE BUFFER INTO VRAM OCCURS. THE THIRD AND FOURTH PORTIONS MOVE THE TOP AND BOTTOM HALVES OF THE BUFFER RESPECTIVELY. THEY ARE CALLED FROM THE INTERRUPT VECTOR LOCATED AT 787DH DURING THE PAUSE CYCLE AND WHEN INTERRUPTS ARE ENABLED. THEY ARE ACCURATELY TIMED AND INITIATED BY THE *FS SIGNAL WHICH CALLS THE INTERRUPT HANDLING ROUTINE. THE MOVE OCCURS DURING THE "INVISIBLE" PORTION OF THE DISPLAY UPDATE AND ELIMINATES HASH.

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        MAINLINE OF PROGRAM   ;CALLING SEQUENCE.
        .........
        DI                    ;DISABLE INTERRUPTS TO SPEED UP PROCESSING.
        DO CALCULATIONS ETC.  ;UPDATE VRAM.
        CALL DPLY             ;UPDATE SCREEN DISPLAY.
        EI                    ;ENABLE INTERRUPTS TO RESUME OTHER CHOIRS.
        .........
        END

VRAM EQU 7000H                ;START OF SCREEN MEMORY.
SSCN EQU 0B200H               ;START OF BUFFER. (OR WHERE-EVER)
SZSC EQU 0800H                ;SIZE OF SCREEN/BUFFER.
HSZC EQU 0400H                ;HALF OF SIZE OF SCREEN/BUFFER.
DLAY EQU 4038H                ;ADDRESS OF DELAY ROUTINE IN DOS.
IVEC EQU 787DH                ;LOCATION OF 3-BYTE INTERRUPT VECTOR.
JMP  EQU 0C3H                 ;OPCODE FOR JUMP.
TURN EQU 0C9H                 ;OPCODE FOR RETURN.
DURD EQU 22H                  ;DELAY DURATION IN MSEC. TO PERMIT SCREEN UPDATE.

DPLY LD A, JMP                ;PUT OPCODE FOR JUMP INTO A.
     LD BC, MTOP              ;POINT TO START OF MOVE TOP-HALF OF BUFFER ROUTINE.
     LD (IVEC+1), BC          ;RESET INTERRUPT VECTOR.
     LD (IVEC), A             ;DITTO - NOW POINTS TO MTOP.
     EI                       ;ENABLE INTERRUPTS SO THAT INTERRUPT VECTOR IS SCANNED.
     LD BC, DURD              ;DELAY DURATION IN MSEC.
     CALL DLAY                ;GO OFF INTO DELAY ROUTINE ALLOWING SUFFICIENT TIME FOR
SCREEN TO BE UPDATED FROM BUFFER.
     DI                       ;DISABLE INTERRUPTS TO PREPARE FOR RESUMING MAINLINE
PROGRAM.
     RET                      ;GO BACK TO CALLING MAINLINE TO UPDATE BUFFER.

MTOP LD HL, SSCN              ;SET SOURCE TO START OF BUFFER.
     LD DE, VRAM              ;SET DESTINATION TO START OF SCREEN.
     LD BC, HSZC              ;SET SIZE TO HALF OF BUFFER/SCREEN SIZE.
     LDIR                     ;UPDATE TOP-HALF OF SCREEN.
     DI                       ;DISABLE INTERRUPTS AS INTERRUPT VECTOR IS TO BE RESET.
     LD BC, MBOT              ;POINT TO START OF MOVE BOTTOM-HALF OF BUFFER ROUTINE.
     LD (IVEC+1), BC          ;RESET INTERRUPT VECTOR.
     EI                       ;ENABLE INTERRUPTS SO THAT DELAY ROUTINE CAN CONTINUE.
     RET                      ;GO BACK TO INTERRUPT HANDLER.

MBOT LD HL, SSCN+HSZC         ;SET SOURCE TO HALF-WAY THROUGH BUFFER.
     LD DE, VRAM+HSZC         ;SET DESTINATION SIMILARLY.
     LD BC, HSZC              ;SET SIZE.
     LDIR                     ;UPDATE BOTTOM-HALF OF SCREEN.
     DI                       ;DISABLE INTERRUPTS AS INTERRUPT VECTOR IS TO BE RESET.
     LD A, TURN               ;PUT OPCODE FOR A RETURN INTO A.
     LD (IVEC), A             ;RESET INTERRUPT VECTOR SO THAT SCREEN UPDATING
ROUTINES ARE NOT ENTERED DURING REMAINDER OF DELAY ROUTINE.
     EI                       ;ENABLE INTERRUPTS SO THAT DELAY ROUTINE CAN CONTINUE.
     RET                      ;GO BACK TO INTERRUPT HANDLER.
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SOUND OR MUSIC HAS NOT BEEN FEATURED IN MOST VZ SOFTWARE. DURING A NUMBER OF BRIEF ARTICLES, I WILL DISCUSS THE GENERATION OF SOUNDS ON THE VZ. I WILL ALSO PROVIDE SOME THOUGHT PROVOKING PROGRAM LISTINGS. I THOROUGHLY ENJOY COMPUTER GENERATED OR SYNTHESIZED MUSIC. THE VZ CAN ALSO BE USED AS A CONTROLLER IN MUSIC GENERATION.

BACKGROUND

THE VZ TONE GENERATOR USES A SMALL PIEZO SPEAKER CONNECTED ACROSS TWO BITS OF THE I/O LATCH. CLEARLY THERE IS NOT MUCH HARDWARE INVOLVED — WHICH IS WHY ALL THE SOUND GENERATION DEPENDS UPON SOFTWARE.

THE OBVIOUS SHORTCOMINGS OF THIS METHOD ARE TWOFOLD:

FIRSTY, ONLY SINGLE VOICED MELODIES CAN BE PLAYED AND, SECONDLY, NOTHING ELSE CAN BE DONE WHILST PLAYING AS THE Z80 IS FULLY OCCUPIED. TO IMPROVE UPON THIS SITUATION, SOME ADDITIONAL HARDWARE IS REQUIRED, SUCH AS AN ADDITIONAL SOUND GENERATING CHIP.

TONE GENERATION IS A PERIODIC PHENOMENON AND REQUIRES FREQUENT SETTING AND RESETTING OF THE TWO BITS DRIVING THE SPEAKER. THE VZ'S I/O LATCH IS ADDRESSED AT 6800H. BITS 0 AND 5 DRIVE THE SPEAKER IN A PUSH-PULL MODE. THIS MEANS THAT BITS 5 AND 0 MUST BE COMPLIMENTARY TO DRIVE THE SPEAKER. THE SAME LATCH ALSO CONTROLS THE CASSETTE PORT ON THE VZ AND THIS MAY BE USED FOR RECORDING TONES. BITS 1 AND 2 SIMILARLY DRIVE THE CASSETTE PORT.

THE FASTER THAT BITS 0 AND 5 ARE SWITCHED (SET AND RESET), THE HIGHER THE PITCH (OR FREQUENCY) OF THE TONE THAT WILL BE ISSUED FROM THE VZ'S SPEAKER. THE NORMAL AUDIO SPECTRUM EXTENDS FROM 20 TO 20000 HERTZ OR CYCLES PER SECOND. FOR EXAMPLE, THE "MIDDLE C" ON A PIANO IS 262 HZ OR A PERIOD OF 3.8 MILLISEC. (PERIOD IS THE RECIPROCAL OF FREQUENCY)

THE QUALITY OR TIMBRE OF THE SOUND IS QUITE INDEPENDANT OF PITCH OR FREQUENCY. A TRUMPET SOUNDS QUITE DISTINCTIVE TO A TROMBONE BECAUSE OF THE DIFFERENT TIMBRE OF EACH INSTRUMENT. MATHEMATICALLY THIS MAY BE EXPRESSED AS THE PRESENCE OF "HARMONICS" BEING PRESENT ABOVE THE FUNDAMENTAL FREQUENCY. IN TERMS OF SOUND GENERATION, THIS IS CHARACTERIZED BY THE DUTY CYCLE OF THE WAVEFORM. NORMALLY IN THE VZ, THE TWO BITS AT 6800H ARE SWITCHED ON AND OFF AT THE SAME RATE. THIS RESULTS IN A SQUARE WAVE FORM OF OUTPUT THAT IS DEFFICIENT IN HARMONICS. THE DUTY CYCLE IS 50:50. THIS MEANS THAT THE "ON PERIOD" IS OF THE SAME DURATION AS THE "OFF PERIOD". BY VARYING THIS RATIO, SOME INTERESTING SOUNDS CAN BE GENERATED.

A THIRD PARAMETER GOVERNS SOUND. IN ADDITION TO PITCH AND TIMBRE, LOUDNESS PLAYS A PART. UNFORTUNATELY ON THE VZ THIS CANNOT BE VARIED INDEPENDANTLY OF TIMBRE.

VZ SOUND SYNTHESIS.

THE SIMPLEST WAY TO GENERATE SOUND ON THE VZ IS TO USE THE FACILITIES PROVIDED BY THE SOUND COMMAND IN THE BASIC INTERPETER. THIS IS VERY USEFUL AND CONVENIENT AND WAS ONE OF THE "IMPROVEMENTS" THAT THE VZ HAD OVER THE EARLIER TRS-80 COMPUTERS.

ENTER MY LISTING ENTITLED "STARWARS" AND LISTEN TO THE TUNE.

THERE ARE A COUPLE OF POINTS TO OBSERVE IN THIS TUNE. THE VOLUME AND TONE (TIMBRE) OF THE MELODY CANNOT BE VARIED. IN A COUPLE OF PLACES, THE TIMING OF THE TUNE IS DELAYED WHILST THE INTERPETER IS WRITING TO THE SCREEN. THE TIMING IS ALSO VARIED IN A COUPLE OF OTHER PLACES AS TRIPLETS (A NOTE OF A CERTAIN DURATION) ARE USED AND THESE ARE NOT PROVIDED IN THE INTERPETER. ALL-IN-ALL THOUGH, THE VZ MAKES A PRETTY FAIR FIST OF IT.

NEXT TIME WE WILL DISCUSS THE BASIC INTERPETER AND ACTUALLY THE MEANS BY WHICH SOFTWARE COMMANDS ARE CONVERTED IN TO PHYSICAL SOUND WAVES.

** ** ** STAR WARS THEME BY BOB KITCH ** ** **

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010 '*************************
020 '*   STAR WARS THEME   *
030 '*    BY BOB KITCH     *
040 '*       20/8/90       *
050 '*************************
060 A%=PEEK(30777):POKE 30777,1:POKE 30744,1:'SPEEDS UP PRINTING.
070 CLS:CLS:PRINT@480,"A LONG TIME AGO"
080 PRINT"IN A GALAXY FAR,FAR AWAY"
090 PRINT"A GREAT ADVENTURE TOOK PLACE.";:FOR I=0 TO 1000:NEXT I
100 SOUND 6,1;6,1;6,1
105 PRINT:PRINT:PRINT"IT IS A PERIOD OF CIVIL WAR.";
110 SOUND 11,4;18,4
120 SOUND 16,1;15,1;13,1;23,4;18,2
130 SOUND 16,1;15,1;13,1;23,4;18,2
140 SOUND 16,1;15,1;16,1;13,4;6,2;6,1
145 PRINT:PRINT:PRINT"REBEL SPACESHIPS"
146 PRINT"FIGHTING FROM A HIDDEN BASE";
150 SOUND 11,4;18,4
160 SOUND 16,1;15,1;13,1;23,4;18,2
170 SOUND 16,1;15,1;13,1;23,4;18,2
180 SOUND 16,1;15,1;16,1;13,4;6,2;6,1
185 PRINT:PRINT"HAVE WON THEIR FIRST VICTORY";
190 SOUND 8,3;8,1;16,1;15,1;13,1;11,1
200 SOUND 11,1;13,1;15,1;13,2;8,1;10,2;6,2;6,1
210 SOUND 8,3;8,1;16,1;15,1;13,1;11,1
220 SOUND 18,1;13,1;13,4;6,2;6,1
225 PRINT:PRINT"AGAINST THE EVIL"
226 PRINT"GALACTIC EMPIRE.";
230 SOUND 8,3;8,1;16,1;15,1;13,1;11,1
240 SOUND 11,1;13,1;15,1;13,2;8,1;10,2;18,2;18,1
250 SOUND 23,2;21,1;20,2;18,1;16,2;15,1;13,2;11,1
260 SOUND 18,5
300 SOUND 6,1;6,1;6,1
305 PRINT:PRINT:PRINT"DURING THE BATTLE";
310 SOUND 11,4;18,4
320 SOUND 16,1;15,1;13,1;23,4;18,2
330 SOUND 16,1;15,1;13,1;23,4;18,2
340 SOUND 16,1;15,1;16,1;13,4;6,2;6,1
345 PRINT:PRINT"REBEL SPIES MANAGED TO STEAL"
346 PRINT"SECRET PLANS TO THE EMPIRE'S"
347 PRINT"ULTIMATE WEAPON";
350 SOUND 11,4;18,4
360 SOUND 16,1;15,1;13,1;23,4;18,2
370 SOUND 16,1;15,1;13,1;23,4;18,2
380 SOUND 16,1;15,1;16,1;13,4;18,2
385 PRINT:PRINT:PRINT"       THE DEATH STAR.":PRINT
390 SOUND 23,8
400 SOUND 23,1;23,1;23,1
410 SOUND 23,1
415 PRINT"- AN ARMOURED SPACE STATION"
416 PRINT"WITH ENOUGH POWER TO DESTROY AN ENTIRE PLANET.";
420 FOR I=0 TO 2000:NEXT I
430 CLS:PRINT@195,"MAY THE FORCE BE WITH YOU."
440 FOR I=0 TO 1000:NEXT I
450 PRINT@430,""
460 POKE 30777,A%:POKE 30744,0
500 END
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                              001 ;
                              002 ;    *** TANDY ***
                              003 ;
                              004 ;VERSION OF THE EPSON PATCH
                              005 ;FOR THE TANDY PRINTER
                              006 ;JULY 13 1989
                              007 ;
         AA4F 3E C3           008         LD    A,0C3H
         AA51 32 C1 79        009         LD    (79C1H),A
         AA54 21 66 AA        010         LD    HL,STRT
         AA57 22 C2 79        011         LD    (79C2H),HL
         AA5A CD C9 01        012         CALL  01C9H
         AA5D 21 11 AB        013         LD    HL,MES
         AA60 CD A7 28        014         CALL  28A7H
         AA63 C3 19 1A        015         JP    1A19H
         AA66 3A 9C 78        016 STRT LD    A,(789CH)
         AA69 33              017         INC   SP
         AA6A 33              018         INC   SP
         AA6B B7              019         OR    A
         AA6C 79              020         LD    A,C
         AA6D C1              021         POP   BC
         AA6E FA 54 3B        022         JP    M,3B54H
         AA71 CA 3A 03        023         JP    Z,033AH
         AA74 E5              024         PUSH  HL
         AA75 F5              025         PUSH  AF
         AA76 21 9B 78        026         LD    HL,789BH
         AA79 34              027         INC   (HL)
         AA7A 7E              028         LD    A,(HL)
         AA7B FE 4F           029         CP    4FH
         AA7D 20 07           030         JR    NZ,POP
         AA7F 36 00           031         LD    (HL),0
         AA81 3E 00           032         LD    A,0DH
         AA83 CD BA 3A        033         CALL  3ABAH
         AA86 F1              034 POP  POP   AF
         AA87 E1              035         POP   HL
         AA88 FE 0D           036         CP    0DH
         AA8A 20 07           037         JR    NZ,FORD
         AA8C 3E 00           038         LD    A,0
         AA8E 32 9B 78        039         LD    (789BH),A
         AA91 3E 0D           040         LD    A,0DH
         AA93 B7              041 FORD OR    A
         AA94 FA 9A AA        042         JP    M,TWOD
         AA97 C3 BA 3A        043         JP    3ABAH
         AA9A CB 77           044 TWOD BIT   6,A
         AA9C 28 3A           045         JR    Z,GRPH
         AA9E E6 3F           046         AND   3FH
         AAA0 F5              047         PUSH  AF
         AAA1 C5              048         PUSH  BC
         AAA2 D5              049         PUSH  DE
         AAA3 E5              050         PUSH  HL
         AAA4 6F              051         LD    L,A
         AAA5 26 00           052         LD    H,0
         AAA7 3E 12           053         LD    A,12H
         AAA9 CD BA 3A        054         CALL  3ABAH
         AAAC 06 04           055         LD    B,4
         AAAE E5              056         PUSH  HL
         AAAF D1              057         POP   DE
         AAB0 B7              058         OR    A
         AAB1 ED 5A           059 LP   ADC   HL,DE
         AAB3 10 FC           060         DJNZ  LP
         AAB5 E5              061         PUSH  HL
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AAB6 C1              062        POP   BC
AAB7 21 94 3B        063        LD    HL,3B94H
AABA 09              064        ADD   HL,BC
AABB 3E FF           065        LD    A,0FFH
AABD CD BA 3A        066        CALL  3ABAH
AAC0 06 05           067        LD    B,5
AAC2 7E              068 LP1    LD    A,(HL)
AAC3 23              069        INC   HL
AAC4 CD BA 3A        070        CALL  3ABAH
AAC7 10 F9           071        DJNZ  LP1
AAC9 3E FF           072        LD    A,0FFH
AACB CD BA 3A        073        CALL  3ABAH
AACE 3E 1E           074        LD    A,1EH
AAD0 CD BA 3A        075        CALL  3ABAH
AAD3 E1              076        POP   HL
AAD4 D1              077        POP   DE
AAD5 C1              078        POP   BC
AAD6 F1              079        POP   AF
AAD7 C9              080        RET
AAD8 C5              081 GRPH   PUSH  BC
AAD9 47              082        LD    B,A
AADA 3E 12           083        LD    A,12H
AADC CD BA 3A        084        CALL  3ABAH
AADF 78              085        LD    A,B
AAE0 E6 0F           086        AND   0FH
AAE2 E5              087        PUSH  HL
AAE3 CB 27           088        SLA   A
AAE5 4F              089        LD    C,A
AAE6 3E 1E           090        LD    A,1EH
AAE8 91              091        SUB   C
AAE9 4F              092        LD    C,A
AAEA AF              093        XOR   A
AAEB 47              094        LD    B,A
AAEC 21 AF 02        095        LD    HL,02AFH
AAEF 09              096        ADD   HL,BC
AAF0 7E              097        LD    A,(HL)
AAF1 47              098        LD    B,A
AAF2 23              099        INC   HL
AAF3 7E              100        LD    A,(HL)
AAF4 4F              101        LD    C,A
AAF5 78              102        LD    A,B
AAF6 CD BA 3A        103        CALL  3ABAH
AAF9 CD BA 3A        104        CALL  3ABAH
AAFC CD BA 3A        105        CALL  3ABAH
AAFF 79              106        LD    A,C
AB00 CD BA 3A        107        CALL  3ABAH
AB03 CD BA 3A        108        CALL  3ABAH
AB06 CD BA 3A        109        CALL  3ABAH
AB09 3E 1E           110        LD    A,1EH
AB0B CD BA 3A        111        CALL  3ABAH
AB0E E1              112        POP   HL
AB0F C1              113        POP   BC
AB10 C9              114        RET
AB11 0D              115 MES    DEFB  0DH
                     116        EQU   $
AB12 -  TEXT  -      117 *TANDY PRINTER PATCH LOADED*
AB2C 0D              118        DEFB  0DH
AB2D 00              119        NOP
AB2E 00              120        NOP
AB2F 00              121        NOP
BYTES FREE :- 21359 ERRORS : 00000
```

WORKING OUT CODES FOR SCREEN ADDRESSES

UNLIKE BASIC, WHICH ADDRESSES EACH INDIVIDUAL DOT WITH THE SET COMMAND, ASSEMBLER ADDRESSES GRAPHICS BY BYTES. A BYTE CONSISTS OF FOUR DOTS. EACH DOT HAS TWO BITS TO INDICATE THE COLOUR.

SO FOR ONE ADDRESS-LETS JUST SAY 7000H (THE FIRST SCREEN ADDRESS).

(PIXEL NUMBER)	1	2	3	4
	***********************			
(CONTENTS)	* 00 * 10 * 11 * 01 *			
	***********************			
COLOR	GREEN	RED	BLUE	YELLOW
	BUFF	MAGENTA	ORANGE	CYAN
(BINARY NUMBER)	00	11	10	01

SO AS YOU CAN SEE THE PIXELS ARE REPRESENTED BY A BINARY VALUE. THEREFORE THE ABOVE BYTE WOULD BE GREEN (OFF), BLUE, RED AND YELLOW, IF THE BACKGROUND COLOUR WAS GREEN (COLOR,0). SO TO DISPLAY THIS YOU SIMPLY LOAD THE BINARY VALUE OF 00101101 OR 45 DECIMAL INTO ADDRESS 7000 HEX.

```
THIS IS DONE BY:
001       LD    A,45        ;NUMBER TO LOAD TO ADDRESS
002       LD    (7000H),A   ;ADDRESS TO LOAD IT TO
IT'S THAT SIMPLE!!!!!
```

PROGRAM NINE — PERSON:
A GOOD EXAMPLE TO SHOW THE USE OF THIS IS TO DRAW A PERSON.

```
00001         LD    A,8          ;ENTER MODE(1)
00002         LD    (6800H),A
00003         LD    HL,7000H
00004         LD    DE,7001H
00005         LD    BC,7FFH
00006         LD    (HL),0
00007         LDIR
00008         LD    A,40         ;FIRST CODE
00009         LD    (28672),A    ;FIRST ADDRESS
00010         LD    (28704),A    ;SECOND ADDRESS
00011         LD    (28768),A    ;THIRD ADDRESS
00012         LD    (28800),A    ;FOURTH ADDRESS
00013         LD    A,170        ;SECOND CODE
00014         LD    (28736),A    ;FIFTH ADDRESS
00015         LD    (28832),A    ;SIXTH ADDRESS
00016         LD    B,100        ;START OF DELAY
00017 DLY     LD    HL,6000
00018 DLY2    DEC   HL
00019         LD    A,H
00020         OR    L
00021         JP    NZ,DLY2
00022         DJNZ  DLY
00023         JP    7B00H
```

PROGRAM TEN — FILLER:
THIS PROGRAM DEMONSTRATES THE USE OF GRAPHICS AND THE SCANNING OF KEYS. WHEN IT IS RUN IT WAITS FOR THE COMMA KEY TO BE PRESSED. IF THIS IS DONE IT FILLS UP THE SCREEN WITH GRAPHICS UNTIL THE KEY IS RELEASED OR THE END OF THE VIDEO SCREEN IS REACHED. IF THIS HAPPENS OR THE 'Q' KEY IS PRESSED THE PROGRAM JUMPS BACK TO THE ASSEMBLER.

```
00001        LD   A,8              00020        JR   Z,STWO
00002        LD   (6800H),A        00021        CP   2CH
00003        LD   HL,7000H         00022        JR   NZ,SCAN
00004        LD   DE,7001H         00023        POP  DE
00005        LD   BC,7FFH          00024        POP  HL
00006        LD   (HL),0           00025        INC  DE
00007        LDIR                  00026        INC  HL
00008        LD   HL,7000H         00027        LD   BC,1
00009        LD   DE,7001H         00028        LD   (HL),255
00010        PUSH DE               00029        LDIR
00011        PUSH HL               00030        PUSH HL
00012 SCAN   CALL 2EF4H            00031        LD   HL,77FFH
00013        OR   A                00032        RST  18H
00014        JR   Z,SCAN           00033        JR   C,QUIT
00015        CP   51H              00034        PUSH DE
00016        JR   NZ,STWO          00035        JP   SCAN
00017        JP   QUIT             00036 QUIT   CALL 1C9H
00018 STWO   CALL 2EF4H            00037        JP   7B00H
00019        OR   A
```

```
LINE 1  CLEARS THE VIDEO SCREEN
LINE 8  SETS UP THE VIDEO ADDRESSES
LINE 12 SCANS FOR THE KEYS BEING PRESSED
LINE 15 WAS IT 'Q' (FOR QUIT)
LINE 21 WAS IT ',' (COMMA)
LINE 23 DRAW DOT
LINE 30 CHECK IF END OF VIDEO IS REACHED, IF SO GO TO QUIT
LINE 36 QUIT
```

PROGRAM ELEVEN - MOVE DOT:

THIS PROGRAM USES THE 'Q A M , KEYS TO MOVE A DOT AROUND THE SCREEN. IF THE TOP OR BOTTOM OF THE SCREEN IS REACHED THE DOT DISAPPEARS BUT IT DOES NOT KEEP GOING. WHEN YOU CHANGE DIRECTION IT REAPPEARS. IF THE SIDES OF THE SCREEN ARE REACHED IT WRAPS AROUND TO THE OTHER SIDE BUT ON THE NEXT LINE.

THE PROGRAM MAKES USE OF LOOPS, CALLS AND RETS, KEY INPUTS AND GRAPHICS. IT COULD BE THE BASIS OF A GAME. (THEY ALL START SOMEWHERE). THE COMMENTS HERE ONLY APPLY TO THE START OF THE ROUTINES. IF YOU STUDY THEM CAREFULLY YOU SHOULD BE ABLE TO FIGURE THEM OUT.

```
00001        LD   A,8              00019        OR   A
00002        LD   (6800H),A        00020        JR   Z,SCNA
00003        LD   HL,7000H         00021        CP   41H
00004        LD   DE,7001H         00022        JR   NZ,SCNM
00005        LD   BC,2047          00023        JP   DOWN
00006        LD   (HL),0           00024 SCNM   CALL 2EF4H
00007        LDIR                  00025        OR   A
00008        LD   A,40             00026        JR   Z,SCNM
00009        LD   HL,73F0H         00027        CP   4DH
00010        LD   (HL),A           00028        JR   NZ,SCNR
00011        PUSH HL               00029        JR   LEFT
00012 SCNQ   CALL 2EF4H            00030 SCNR   CALL 2EF4H
00013        OR   A                00031        OR   A
00014        JP   Z,SCNQ           00032        JR   Z,SCNR
00015        CP   31               00033        CP   2CH
00016        JP   NZ,SCNA          00034        JR   NZ,SCNX
00017        JP   UP               00035        JR   RIGH
00018 SCNA   CALL 2EF4H            00036 SCNX   CALL 2EF4H
```

```
00037          OR    A                    00086          CALL  DECR
00038          CP    58H                  00087          PUSH  HL
00039          JR    NZ,SCNQ              00088          LD    DE,77E0H
00040          JP    EXIT                 00089          RST   18H
00041 RIGH     POP   HL                   00090          JR    NC,FIX3
00042          LD    A,0                  00091          LD    DE,701F
00043          LD    (HL),A               00092          RST   18H
00044          INC   HL                   00093          JR    C,FIX3
00045          PUSH  HL                   00094          JR    DRAW
00046          LD    DE,77E0H            00095 FIX3     POP   HL
00047          RST   18H                  00096          CALL  INCR
00048          JR    NC,FIX1             00097          PUSH  HL
00049          LD    DE,701F              00098          JP    SCNQ
00050          RST   18H                  00099 DOWN     POP   HL
00051          JR    C,FIX1              00100          LD    A,0
00052          JR    DRAW                 00101          LD    (HL),A
00053 FIX1     POP   HL                   00102          CALL  INCR
00054          DEC   HL                   00103          PUSH  HL
00055          PUSH  HL                   00104          LD    DE,77E0H
00056          JR    SCNQ                 00105          RST   18H
00057 LEFT     POP   HL                   00106          JR    NC,FIX4
00058          LD    A,0                  00107          LD    DE,701FH
00059          LD    (HL),0               00108          RST   18H
00060          DEC   HL                   00109          JR    C,FIX4
00061          PUSH  HL                   00110          JR    DRAW
00062          LD    DE,77E0H            00111 FIX4     POP   HL
00063          RST   18H                  00112          CALL  DECR
00064          JR    NC,FIX2             00113          PUSH  HL
00065          LD    DE,701FH             00114          JP    SCNQ
00066          RST   18H                  00115 EXIT     CALL  01C9H
00067          JR    C,FIX2             00116          CALL  3450H
00068          JR    DRAW                 00117          CALL  DLAY
00069 FIX2     POP   HL                   00118          JP    7B00H
00070          INC   HL                   00119 INCR     LD    B,20H
00071          PUSH  HL                   00120 LOP1     INC   HL
00072          JR    SCNQ                 00121          DJNZ  LOP1
00073 DRAW     CALL  DLAY                 00122          RET
00074          LD    B,100                00123 DECR     LD    B,20H
00075 LOP3     LD    HL,100               00124 LOP2     DEC   HL
00076          DEC   HL                   00125          DJNZ  LOP2
00077          DJNZ  LOP3                 00126          RET
00078          POP   HL                   00127 DLAY     LD    B,100
00079          LD    A,40                 00128 DLY1     LD    HL,75
00080          LD    (HL),A               00129 DLY2     DEC   HL
00081          PUSH  HL                   00130          LD    A,H
00082          JP    SCNQ                 00131          OR    L
00083 UP       POP   HL                   00132          JP    NZ,DLY2
00084          LD    A,0                  00133          DJNZ  DLY1
00085          LD    (HL),0               00134          RET
```

LINE 1   CLEARS THE VIDEO SCREEN   LINE 8   SETS UP DOT'S START POSITION
LINE 11   SCAN FOR 'Q' BEING PRESSED   LINE 17   SCAN FOR 'A' BEING PRESSED
LINE 23   SCAN FOR 'M' BEING PRESSED   LINE 29   SCAN FOR ',' BEING PRESSED
LINE 35   SCAN FOR 'X' BEING PRESSED (EXIT) LINE 40   MOVE DOT TO THE RIGHT
LINE 56   MOVE DOT TO THE LEFT   LINE 72   DRAW DOT IN ITS NEW POSITION
LINE 82   MOVE DOT UPWARDS   LINE 98   MOVE DOT DOWNWARDS
LINE 114 JUMP BACK TO THE ASSEMBLER   LINE 118 INCREMENT ROUTINE FOR DOWN
LINE 122 DECREMENT ROUTINE FOR UP   LINE 126 DELAY ROUTINE

FOR FOLK WHO WISH TO MODIFY THEIR PRESENT *PM DB* UNITS AND REQUIRE HELP TO "UNLOCK" IT PLEASE CONTACT MYSELF, THE EDITOR OF THIS MAGAZINE, MR LARRY TAYLOR OR SOME OTHER VZ "SPECIALISTS".

JOHN D'ALTON 39 AGNES STREET TOOWONG QLD 4066
LARRY TAYLOR 4 COLUMBIA COURT SPRINGWOOD QLD 4127
THE EDITOR H V VZ JOURNAL PO BOX 161 JESMOND 2299

ONLY REQUESTS BY MAIL THAT INCLUDE A SSAE ENVELOPE WILL BE ANSWERED.

REFER TO MY PREVIOUS ARTICLE IN THIS MAGAZINE TITLED "UTILITIES FOR DSE. DISC DATABASE" WHERE I OUTLINED SOME VERY USEFUL MODS THAT I HAVE DEVELOPED AND NOW PASS ON TO INTERESTED FOLK.

THE DATABASE UNIT WHICH THE AUTHOR MR. PHIL MAUDE WROTE WAS SOLD BY DSE. HE HAS NOW LIFTED COPYRIGHT ON IT WHICH NOW ALLOWS THESE MODIFICATIONS TO BE MADE. THAT UNIT I CALL *PM DB* AND FOR THE NEW MODIFICATIONS I SHALL CALL THE UNIT *PM DB JD M.*

I WILL PRESENT THE ARTICLES IN PRINTED FORM ONLY, NOT ON DISC. IT IS UP TO THE READER TO TYPE IN THE BASIC MODS. YOU WILL NEED TO UNDERSTAND A LITTLE OF THE BASIC LANGUAGE TO PERHAPS DO ANY REQUIRED CORRECTIONS. HOPEFULLY THERE WILL NOT BE TOO MANY "BUGS" FOR YOU TO IRON OUT. THE MODS ARE PROGRAMMED IN BLOCK FORM SO YOU SHOULD NOT HAVE TOO MUCH TROUBLE. THERE ARE SOME PROGRAMMING REMARKS STILL REMAINING AND CAN BE REMOVED IF DESIRED. IN SOME CASES YOU MAY HAVE TO ALTER DIM STATEMENTS AND SUCH LIKE. YOU MAY ALSO HAVE TO INITIALISE NEW VARIABLES THAT I HAVE USED.

I DO NOT ACCEPT ANY RESPONSIBILITY FOR ANY ERRORS IN THE BASIC PROGRAMMES OR FOR ANY LOSS OR CORRUPTION OF DATA FILES. YOU SHOULD MAKE BACK-UP OF ALL FILES IN ANY CASE. IN MY PREVIOUS ARTICLE I NUMBERED THE MODS 1 TO 7. I WILL NOT PRESENT THE MODS IN THIS ORDER. THE MOD NUMBERED 2 WIL BE THE FIRST ONE. SO HERE GOES. BEST OF LUCK.

2. ALTER THE SYSOP DATA

WITH THE ORIGINAL *PM DB* THERE WAS NO WAY OF ALTERING THIS ONCE IT WAS MADE. IF AFTER SOME TIME (WEEKS/MONTHS) YOU WANTED TO DO THIS, IT MEANT STARTING FROM SCRATCH, SETTING UP A NEW FILE SYSOP AND TYPING IN ALL THE RECORDS DATA AGAIN. SAY YOUR FILE WAS CALLED "AUSTRALIAN STAMPS" AND YOU NEED TO RENAME IT "AUSTRALIAN STAMPS 1" THEN THIS CAN BE DONE ON THE FIRST PROMPT. THE AMOUNT OF CHARS (CHARACTERS) DOES NOT HAV TO BE THE SAME.

THE NUMBER OF PRINTER COLUMNS CAN ONLY BE INCREASED (AT PRESENT). THIS TIES IN WITH THE AMOUNT OF FIELDS, CHARS PER FIELD AND SPACES BETWEEN FIELDS. THE NAME OF ONE OR MORE FIELDS CAN BE ALTERED WITHOUT COUNTING THE LENGTH OF THE NAME. THE LENGHT OF A FIELD CAN BE INCREASED (NOT DECREASED AT PRESENT). ONLY ONE FIELD LENGTH CAN BE ALTERED AT A TIME AND REMEMBER TO CALCULATE THIS IN RELATION TO THE "AMOUNT OF PRINTER COLUMNS".

NOW TO THE MODIFICATIONS

LINES 20, 30 AND 31.

```
20 DIM FN$(25),FL(25),L$(100),F$(25),N$(100),D$(100),LP(20)
22 'FOR TRANSFER USE DIM N1$(200),K$(200),LL$(200)
30 TL=0:J=0:I=0:X=0:N=0:FL=0:F=0:R=0:A=0
31 M1$="-------------------------------":REM 31 MINUSES
```

LINE 9072.

```
9072 GOSUB 9500:RETURN
```

THE ACTUAL SECTION THAT ALTERS THE SYSOP THAT YOU TYPE IN:-

LINES 9500 TO 9576.

```
9500 'ALTER FIELD NAMES
9504 CLS:PRINT"FILE NAME = ";FL$
9505 PRINT"AMOUNT OF FIELDS = ";N:LP(1)=1
9507 FOR L=1 TO N:LP(L+1)=LP(L)+1+FL(L)
9509 PRINT"LEFT TAB = ";LP(L);"LENGTH =";FL(L):NEXT
9514 PRINT:PRINT"ALTER FIELDS OR PRINTER COLUMNS"
9516 INPUT" Y/N ";Q$:IF Q$="N" RETURN ELSE 9518
9518 PRINT"FILENAME IS ";FL$;INPUT"OK Y/N ";Q$
9520 IF Q$="Y" THEN 9524 ELSE 9521
9521 INPUT"TYPE IN NEW FILENAME
         ";FL$:REM 11 SPACES
9524 PRINT"AMOUNT OF PRNTR COLS = ";PT:INPUT"PRINTER OK Y/N ";Q$
9525 IFQ$="Y"THEN 9530 ELSE INPUT"PRINTER COLS";PT:CLS:GOTO 9530
9530 CLS
9532 FOR Z=0 TO N
9534 PRINT"FIELD ";Z;"IS ";FN$(Z)
9537 NEXT Z
9540 PRINT M1$:INPUT"WHICH FIELD TO ALTER ";Z:PRINT M1$
9542 PRINT"FIELD ";Z;"WAS   "FN$(Z)
9543 PRINT"  FIELD LENGTH = ";FL(Z)
9545 PRINT
9550 PRINT"   TYPE NEW FIELD NAME"
9552 INPUT"          ";FN$(Z):PRINT M1$:REM 8 SPACES
9554 PRINT"FIELD";Z;"IS NOW ";FN$(Z):PRINT
9560 INPUT"ALTER FIELD LENGTH Y/N ";Q$:IF Q$="N" THEN 9565
9562 INPUT"TYPE NEW FIELD LENGTH ";FL(Z)
9564 PRINT"NEW FIELD LENGTH = ";FL(Z):PRINT M1$
9565 INPUT"ADD MORE OR DELETE FIELDS Y/N ";Q$
9566 IF Q$="Y"THEN 9567 ELSE 9570
9567 INPUT"<A>DD MORE OR <D>ELETE ";Q$:IF Q$="A"THEN9568ELSE9569
9568 INPUT"HOW MANY MORE ";Z2:N=N+Z2:CLS:GOTO 9570
9569 INPUT"HOW MANY LESS ";Z2:N=N-Z2:CLS:GOTO 9570
9570 PRINT M1$:PRINT"MORE TO ALTER OR ADD ";
9572 INPUT"MORE FIELDS Y/N ";Q$:IF Q$="Y"THEN 9500
9574 CLS:PRINT"   IS DISC IN DRIVE?":INPUT"   PRESS RETURN";Q$
9575 SOUND 30,2;20,2:ERA"SYSOP"
9576 GOSUB 9039:RETURN
```

WHEN YOU ARE FINISHED THE OLD SYSOP IS ERASED AND NEW SYSOP IS SAVED.

THE NEXT NORMAL OPERATION OF *PM DM* IS TO LOAD THE RECORDS FILE. IF WITH *PM DB JD M* YOU HAVE ALTERED THE LENGTH OF A FIELD, THE NEXT MOD MUST BE TYPED IN. THIS IS LINE 1530. ALSO LINES 1540 TO 1592 AND LINES 9400 TO 9450.

LINE 1530.

```
1530 SOUND 25,1;0,9;0,9:
```

LINES 1540 TO 1592

```
1540 ' INSERT SPACES & REPACK
1542 CLS:PRINT"  ";I-1;" RECORDS WERE LOADED"
1543 PRINT:PRINT" IF A FIELD LENGTH HAS BEEN ALT-ERED AND SAV";
1544 PRINT"ED AS SYSOP, THEN THE EXISTING DATA HAS TO BE ";
```

LINES 1540 TO 1592 CONTINUED

```
1545 INPUT" WAS A FIELD LENGTH  CHANGED        Y/N";Q$
1547 IF Q$="N"THEN GOTO 500
1550 PRINT M1$:INPUT"WHICH FIELD ";FL
1552 INPUT"# OF ADDED SPACES ";SP:SQ$=" ":L$="":SP$="":SR=SP
1556 FOR Z=1 TO SP:SP$=SP$+" "
1560 IF LEN(SP$)<SP THEN 1556
1562 PRINT:PRINT"  DATA BEING REPACKED"
1564 FOR I=1 TO R:GOSUB 9400
1566 FOR J=1 TO N
1568 IF J=FL THEN SO$=SP$+" " ELSE SO$=SQ$
1570 TS$=L$+F$(J)+SO$:N$(I)=N$(I)+TS$:NEXT J
1571 L$(I)=N$(I)
1583 '
1585 NEXT I
1588 CLS:PRINT:PRINT:PRINT" NOW TO RESAVE DATA ONTO DISC"
1590 PRINT:INPUT"INSERT DISC & PRESS RETURN";Q$:GOSUB 4000
1592 GOTO 500
1599 END
```

LINES 9400 TO 9450

```
9400 REM UNPACK STRING WHEN FLD LGT ALTERED
9402 SP=SR:L$=""
9410 FOR J=1 TO N:IF J=1 THEN X=1
9412 IF J=FL THEN FL(J)=FL(J)-SP
9420 F$(J)=MID$(L$(I),X,FL(J))
9430 X=1+X+FL(J)
9435 IF J=FL THEN FL(J)=FL(J)+SP
9450 NEXT J:RETURN
```

MR MAUDE DESIGNED *PM DB* TO "PACK" THE DATA TOGETHER, SEPERATED WITH A SPACE. EI.

FIELD 1 IS 10 CHARS LONG AND FIELD 2 IS 5 CHARS LONG. EI.
FIELD 1 DATA IS "SMITH" AND FIELD 2 DATA IS "QLD".
BEFORE PACKING THIS IS, (A DASH REPRESENTS A SPACE):-

SMITH------QLD---
AFTER PACKING IS:-
SMITH-QLD-

NOW IF YOU ALTERED THE LENGTH OF FIELD 1 FROM 10 TO 15 THEN THE EXTRA 5 SPACES MUST BE FITTED INTO THAT FIELD. IF THE WORD IS "THOMASETI" THEN 6 EXTRA SPACES ARE PACKED IN, PLUS THE END OF FIELD (EOF) SPACE.

AFTER THE RECORDS FILE HAS BEEN LOADED YOU ARE ASKED IF A FIELD LENGTH HAS BEEN ALTERED. IN THIS CASE ANSWER YES. YOU THEN TYPE IN THE AMOUNT OF EXTRA SPACES, EI, 5 IN THIS CASE. THE RE-PACKING OF THE FIELD ALTERED OF ALL THE RECORDS IS NOW DONE. EVERY FIELD AFTER THE FIELD ALTERED IS MOVED TO THE RIGHT BY 5. THIS IS CARRIED OUT TO EVERY RECORD. SO IF THE END OF THE RECORD COUNTED TO 90 CHARS, IT WOULD NOW BE 95. UNDERSTAND?

THIS RE-PACKING TAKES A MINUTE OR SO, DEPENDING ON THE NUMBER OF RECORDS ON THE FILE. THE OLD FILE IS ERASED AND THE NEW FILE IS SAVED. GO STAIGHT TO THE "PRINT FILE" ON PRINTER AND ALL SHOULD BE OK. TEST ON A SMALL FILE OF SAY 5 RECORDS AT FIRST. IF ALL OK THEN ANOTHER FIELD LENGTH CAN BE ALTERED TO RECHECK.

AS MENTIONED IN LAST ISSUE THE AVAILABILITY OF CHEAP LARGE CAPACITY MEMORY DEVICES BOTH STATIC AND DYNAMIC CAN EXPAND THE VZ HORIZONS CONSIDERABLY. WITH COMPATIBILITY OF PREVIOUS EXPANSIONS AND STANDARDS IN MIND I PROPOSE AND ADD THE FOLLOWING STANDARDS:
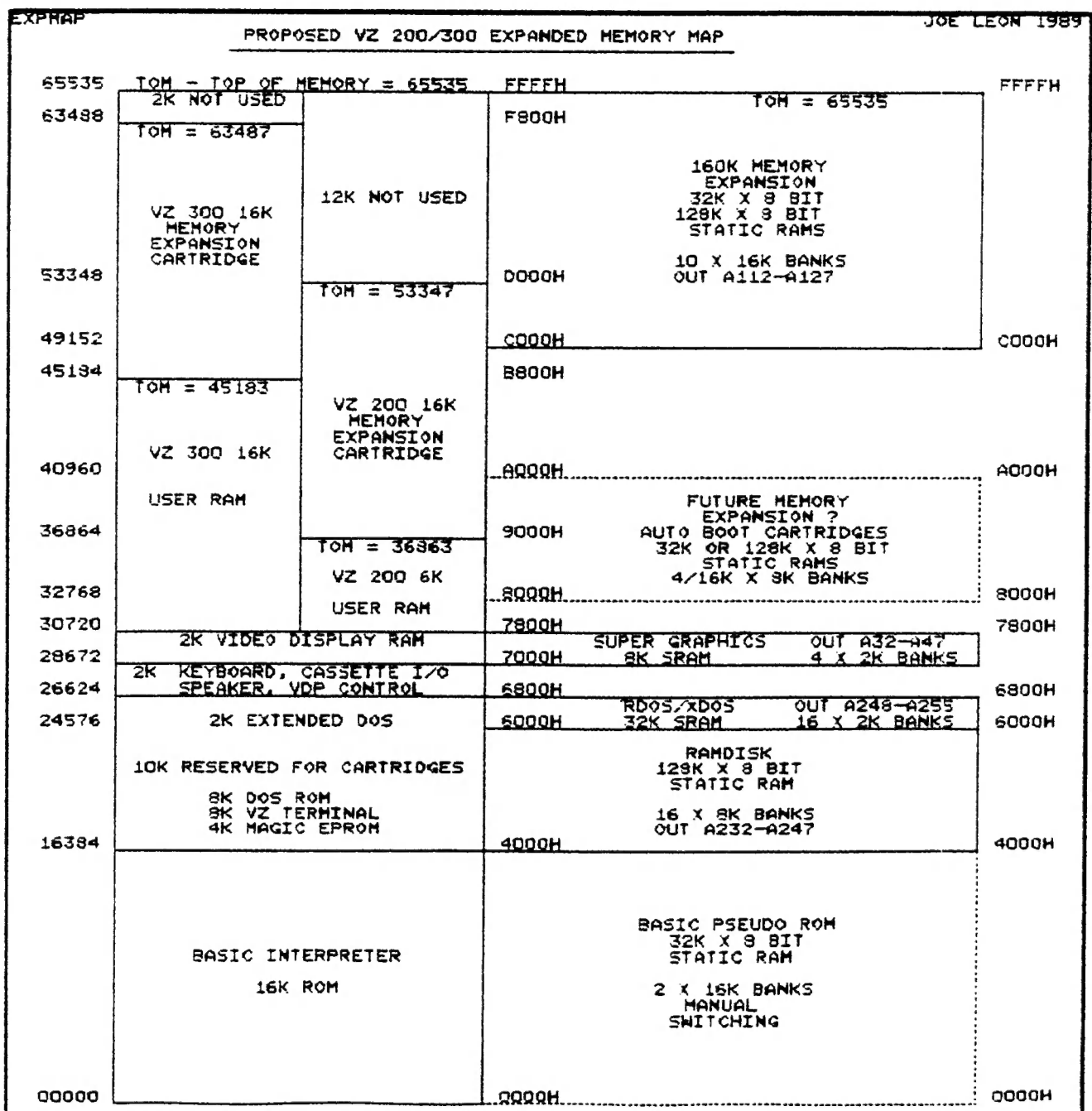
```
MAIN MEMORY     - C000H-FFFFH - OUTPUT PORT A112-A127 - 16K BANKS
AUTO BOOT       - 8000H-9FFFH - OUTPUT PORT A216-A231 -  8K BANKS
SUPER GRAPHICS  - 7000H-77FFH - OUTPUT PORT  A32-A47  -  2K BANKS
RDOS            - 6000H-67FFH - OUTPUT PORT A232-A247 -  2K BANKS
RAMDISK         - 4000H-5FFFH - OUTPUT PORT A248-A255 -  8K BANKS
```

AUTO BOOT = MORE ON IT NEXT ISSUE.
RDOS   = RAM DISK OPERATING SYSTEM. WILL CONTROL RAMDISK AND ITS DATA STORAGE/RETRIEVAL OPERATIONS.
RAMDISK   = VERY FAST MEMORY BASED PROGRAM & DATA STORAGE/RETRIEVAL AREA SIMILIAR TO DISK DRIVE.

NOTE : ANY COMMENTS ON ABOVE PLEASE CONTACT THE EDITOR.

EXPMAP   JOE LEON 1989
PROPOSED VZ 200/300 EXPANDED MEMORY MAP

```
**************************************************************
*                                                            *
*    LOOK !!!! --- PROGRAMS FOR SALE --- ALL NEW !!!!         *
*                                                            *
**************************************************************
```

<1>   V Z   D I S A S S E M B L E R
###############################

WHAT, ANOTHER DISASSEMBLER? BUT, YOU HAVE ALREADY GOT ONE? THIS ONE IS DIFFERENT!

THIS PROGRAM IS ENTIRELY WRITTEN IN MACHINE CODE. IT ACTUALLY RUNS ABOUT 40 TIMES FASTER THAN D.S.E.'S DISASSEMBLER (OR ANY ONE ELSE'S).   IT WILL DISASSEMBLE ANY PROGRAM THAT YOU CAN BLOAD INTO MEMORY. IT WORKS WITH ANY VZ CONFIGURATION. IT DISASSEMBLES EVEN THE 88 EXTRA Z80 OPCODES THAT ZILOG DOESN'T ADMIT TO.

PRICE? ONLY $25.00 - TAPE AND DISK VERIONS AVAILABLE.

PRICE INCLUDES HARDCOPY MANUAL. INTERESTED? YOU MAY PURCHASE THIS PROGRAM FROM PETER HICKMAN, FOR ADDRESS SEE BELOW.

```
**************************************************************
*                                                            *
*  BRAND NEW   -   VZ SERIAL INTERFACE PROGRAM   -  BRAND NEW *
*                                                            *
**************************************************************
```

<2>   V Z   M O D E M   S O F T W A R E
#################################

DID YOU WANT TO TALK TO OTHER COMPUTERS VIA A MODEM? DID YOU BUY THE DSE TERMINAL EPROM, ONLY TO DISCOVER THAT IT ONLY WORKS WITH TAPE. IT ONLY ALLOWS YOU TO PRINT FILES, NOT SAVE THEM OR SEND THEM!

YOUR PROBLEMS ARE SOLVED! THE HICKMAN BROTHERS, PETER AND ANDREW, HAVE A BRAND NEW PROJECT WHICH WILL ALLOW YOU TO SEND, RECEIVE & SAVE FILES VIA A MODEM. IT WORKS WITH DISK!

SALE PRICE $25.00 ONLY

INCLUDED ARE INSTRUCTIONS FOR THE HARDWARE MODIFICATIONS.

A SMALL MODIFICATION IS NEEDED TO YOUR DISK CONTROLLER. YOUR USER GROUP MAY HELP YOU MODIFY YOUR COMPUTER TO USE THIS EXCITING NEW SOFTWARE! IF YOU HAVE THE FUNCTION KEYS MOD AS WELL, THEN YOU WILL BE ABLE TO SEND EXTRA ASCII CHARACTERS SUCH AS:-

        { | } ~ _

THE MANUAL IS SUPPLIED ON DISK FOR YOU TO PRINT OUT WITH YOUR DISK VERSION OF E & F WORDPROCESSOR. IF YOU DO NOT OWN AN E & F WORDPROCESSOR PROGRAM, PLEASE ENCLOSE ANOTHER $5.00 (TOTAL $30.00) FOR PHOTOCOPYING AND POSTAGE OF THE MANUAL.

FOR PURCHASE OR MORE INFORMATION CONTACT:-
PETER HICKMAN P.O. BOX 8, WERRINGTON N.S.W. 2747.

PATCH 3.3 WRITTEN BY DAVE MITCHELL WILL CONVERT YOUR E & F TAPE WORD PROCESSOR FOR FULL DISK USE WHILE RETAINING ALL ORIGINAL FUNCTIONS. BELOW ARE ADDED DISK COMMANDS & FUNCTIONS :-

LOAD, SAVE, ERASE, RENAME, DIRECTORY, INITIALIZE, UPDATE, DRIVE 1 & 2, SHIFTLOCK & IMBEDDED PRINTER CONTROL CODES PLUS CTRL+P WHICH BYPASSES PRINT MENU AND PRINTS TO SCREEN OR PRINTER. A ROUTINE IS ALSO PROVIDED TO CONVERT YOUR BASIC PROGRAM OR SOURCE CODE FILES INTO WORD PROCESSOR FILES.

PATCH 3.3 HAS PROVISION FOR IMBEDDING PRINTER CONTROL CODES IN TEXT AND FAST SAVING AND LOADING OF TEXT DATA TO AND FROM DISK USING BLOCK SAVE/LOAD TECHNIQUES. PRINTER CONTROL CODES CAN BE SAVED TO TAPE OR DISK.

BSTWP.F - THIS UTILITY PROVIDED WITH PATCH 3.3 WILL CONVERT BASIC PROGRAMS AND ED/ASS. SOURCE CODE FILES INTO WORD PROCESSOR FILES.

SYSTEM REQUIREMENTS - VZ 300 + 16K RAM PACK - VZ 200 + 26K

PATCH 3.3 IS COPYRIGHT TO AND ONLY AVAILABLE FROM :-
HUNTER VALLEY VZ USERS' GROUP   P.O.BOX 161 JESMOND 2299
N.S.W. AUSTRALIA - PHONE JOE LEON (049) 51 2756

PRICE - AUS/NZ AU$20.00 - UPDATE - AUS-$10.00 - NZ-AU$11.00.
UPDATING AVAILABLE ONLY TO PREVIOUS PURCHASERS OF PATCHES.

FOR MORE INFORMATION WRITE TO H.V.VZ.U.G. ENCLOSING A SSAE.

EXTENDED DOS V1.3 - $15.00

UPDATED VERSION WITH EXTRA COMMANDS ADDED :-

OLD COMMANDS - MERGE, DIRA, LDIRA, DIRB, LDIRB, OLD, OLD., DEC, HEX, STATUSA AND LSTATUSA. STATUSA AND LSTATUSA ALSO WORKS WITH VERSION 1.0 DOS.

NEW COMMANDS :-

MENU - LOADS AND RUNS BINARY OR TEXT MENU PROGRAM FROM DISK.
CODE - SIMPLIFIES USING PRINTER CONTROL CODES DIRECTLY OR FROM
          WITHIN A PROGRAM.
LTAB - IS FOR SETTING OF LEFT MARGIN.
MOVE - MOVES BASIC FILE FROM DISK TO CHOSEN MEMORY ADDRESS.
UPD   - ERASES OLD FILE AND SAVES WITH SAME FILE NAME.

MENU/FILE COPIER - $15.00

THIS UTILITY WILL READ YOUR DISK DIRECTORY AND PRESENT YOU WITH SEVERAL OPTIONS. USING THE CURSOR YOU CAN RUN/BRUN ANY PROGRAM OR SELECT FILE COPY, REN, ERASE, DRIVE 1 OR 2, ETC. BESIDES COPYING TEXT AND BINARY FILES ALL OTHER FILES CAN BE COPIED AS WELL EXEPT FOR DATA FILES.

FOR PURCHASE OR INFORMATION CONTACT DAVE MITCHELL - (079) 27 3519
24 ELPHINSTONE ST. NORTH ROCKHAMPTON QUEENSLAND 4701

FOR INFORMATION OR DEMONSTRATION IN NEWCASTLE AREA CONTACT :-
JOE LEON - (049) 51 2756 - 22 DRURY STREET WALLSEND NSW 2287

CONTRIBUTIONS TO THE HUNTER VALLEY VZ JOURNAL :-

    IF YOU ARE THINKING OF CONTRIBUTING TO THE JOURNAL THE PREFERED
FORMAT IS BASIC LISTINGS, WORD PROCESSOR OR SOURCE CODE FILES ON TAPE
OR DISK. FILES FROM THE FOLLOWING WORD PROCESSORS CAN BE ACCEPTED :-

E & F TAPE OR DISK PATCH 3.1-3.3, WORDPRO CARTRIDGE, WORDPRO PATCH,
MOST SOURCE CODE FILES AND ALL QUICKWRITE WORD PROCESSOR FILES.

** ** CLUB MEETINGS - ALL WELCOME ** **

FIRST FRIDAY OF MONTH - NO MEETING IN JANUARY 1991

VENUE - JESMOND NEIGHBOURHOOD CENTRE MORDUE PARADE JESMOND
(REAR STOCKLAND MALL - BIG W)

DECEMBER 7 - REVIEWING 1990 & PREVIEWING 1991
             BASIC - MACHINE CODE & ASSEMBLY CONTINUED
             CHRISTMAS PARTY - BRING FAMILY - FRIENDS - PLATE
             HOT & COLD LIQUID REFRESHMENTS PROVIDED - ALL WELCOME

JANUARY 4 - NO MEETING

FEBRUARY 1 - BASIC - MACHINE CODE & ASSEMBLY CONTINUED
             DEMO - IF READY 320K MEMORY EXPANSION
             NOTIFIED IN NEXT ISSUE IF OTHERWISE

FUTURE DEMONSTRATIONS -

EPROM PROGRAMMER & ERASER, AUCTION NIGHT - USING THE VZ, RITTY, ETC.
IF YOU HAVE ANY IDEAS FOR A DEMONSTRATION OR A SUBJECT THEN PLEASE LET
YOUR COMMITTEE KNOW.

CLUB COMMITTEE & SUBSCRIPTIONS -

PRESIDENT --------- ROSS WOODS --- (049) 71 2843
SECRETARY/EDITOR -- JOE LEON ----- (049) 51 2756
TREASURER --------- GARY BULLEY -- (049) 54 7561
COMMITTEE MEMBERS - COLIN BRIDGE - PETER JONES

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